CONTENT AREA: Mathematics

GRADE LEVEL: 5

Standard Descriptions:

In grade 5, instructional time should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to two-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

Blue: Standards 1 through 3 (TEST WINDOW 1)
Yellow: Standards 4 through 6 (TEST WINDOW 2)

(1) Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)
(2) Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths

efficiently and accurately.
(3) Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

Operations and Algebraic Thinking (OA)	Write and interpret numerical expressions.
	Analyze patterns and relationships.
Number and Operations in Base Ten (NBT)	Understand the place value system.
	Perform operations with multi-digit whole numbers and with decimals to hundredths.
Number and Operations—Fractions (NF)	Use equivalent fractions as a strategy to add and subtract fractions.
	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
Measurement and Data (MD)	Convert like measurement units within a given measurement system.
	Represent and interpret data.
	Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
Geometry (G)	Graph points on the coordinate plane to solve real-world and mathematical problems.
	Classify two-dimensional figures into categories based on their properties.

Grade Level/ Content Area	Alternate K-PREP Aligned to KCAS for Mathematics	KCAS Standard
Grade 5 Mathematics	**(M-5.1)** Use place value understanding to round decimals to any place.	**KCAS (5.NBT.4)** Use place value understanding to round decimals to any place.
	(M-5.2) Solve real world problems involving multiplication of fractions.	**KCAS (5.NF.6)** Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
	(M-5.3) Generate two real world numerical patterns using two given rules. Form ordered pairs and graph the pairs on a coordinate plane.	**KCAS (5.OA.3)** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.
	(M-5.4) Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane.	**KCAS (5.G.2)** Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

	(M-5.5) Measure volume by counting unit cubes, using cubic in., cubic ft., and improvised units.	**KCAS (5.MD.4)** Measure volumes by counting unit cubes, using cubic cm., cubic in., cubic ft., and improvised units.
	(M-5.6) Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category.	**KCAS (5.G.3)** Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.